

KIMBERLEY et al
Appl. No. 10/583,115
July 1, 2008

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-16 (cancelled).

17 (currently amended). A process for the polymerisation of olefin monomers selected from the group consisting of (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) which with one or more other alpha-olefins, said process performed comprising performing said polymerization in a polymerisation reactor in the presence of a supported polymerisation catalyst ~~characterised in that~~ wherein prior to injection into the reactor said supported polymerisation catalyst in the form of a powder is contacted with an inert hydrocarbon liquid in a quantity sufficient to maintain said catalyst in powder form, and wherein the inert hydrocarbon liquid is present in amount up to about 10% of the pore volume of the support.

18 (previously presented). A process according to claim 17 wherein the inert hydrocarbon liquid is a lower alkane or an aromatic hydrocarbon.

19 (previously presented). A process according to claim 18 wherein the inert hydrocarbon liquid is hexane.

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20 (previously presented). A process according to claim 17 wherein the supported polymerisation catalyst comprises

- (a) a support,
- (b) a transition metal compound, and
- (c) an activator.

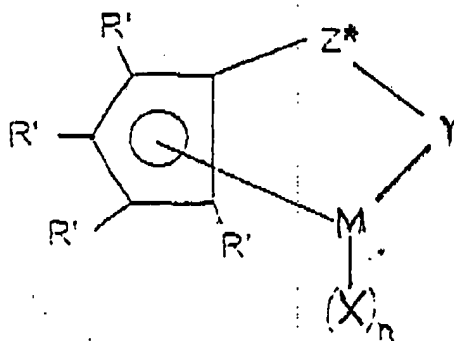
21 (canceled).

22 (previously presented). A process according to claim 20 wherein the support is an inorganic metal oxide.

23 (previously presented). A process according to claim 22 wherein the support is silica.

24 (previously presented). A process according to claim 20 wherein the transition metal compound is a metallocene.

25 (currently amended). A process according to claim 24 wherein the metallocene has the formula:



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wherein:-

R' each occurrence is independently selected from the group consisting of hydrogen, hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is hydride or a moiety selected from the group consisting of halo, alkyl, aryl, aryloxy, alkoxy, alkoxyalkyl, amidoalkyl, and siloxyalkyl etc. having up to 20 non-hydrogen atoms and neutral Lewis base ligands having up to 20 non-hydrogen atoms,

Y is -O-, -S-, -NR^{*}-, PR^{*}-,

M is hafnium, titanium or zirconium,

Z^{*} is SiR^{*}₂, CR^{*}₂, SiR^{*}₂SiR^{*}₂, CR^{*}₂CR^{*}₂, CR^{*}=CR^{*}, CR^{*}₂SiR^{*}₂, or GeR^{*}₂, wherein:

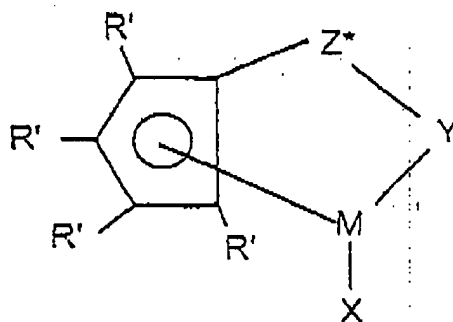
R^{*} each occurrence is independently hydrogen, or a member selected from the group consisting of hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said

R^{*} having up to 10 non-hydrogen atoms, and optionally, two R^{*} groups from Z^{*} (when R^{*} is not hydrogen), or an R^{*} group from Z^{*} and an R^{*} group from Y form a ring system,

and n is 1 or 2 depending on the valence of M.

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26 (currently amended). A process according to claim 24 wherein the metallocene has the formula:



wherein:-

R' each occurrence is independently selected from the group consisting of hydrogen, hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is a neutral η^4 bonded diene group having up to 30 non-hydrogen atoms, which forms a π -complex with M;

Y is -O-, -S-, -NR^{*}-, -PR^{*}-,

M is titanium or zirconium in the + 2 formal oxidation state;

Z^{*} is SiR^{*}₂, CR^{*}₂, SiR^{*}₂SiR^{*}₂, CR^{*}₂CR^{*}₂, CR^{*}=CR^{*}, CR^{*}₂SiR^{*}₂, or GeR^{*}₂,

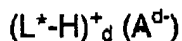
wherein:

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R* each occurrence is independently hydrogen, or a member selected from the group consisting of hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said

R* having up to 10 non-hydrogen atoms, and optionally, two R* groups from Z* (when R* is not hydrogen), or an R* group from Z* and an R* group from Y form a ring system.

27. (previously presented). A process according to claim 20 wherein the activator has the formula



wherein

L* is a neutral Lewis base

(L*-H)⁺_d is a Bronsted acid

A^{d-} is a non-coordinating compatible anion of a Group IIIA metal or metalloid having a charge of d⁻, and

d is an integer from 1 to 3.

28 (previously presented). A process according to claim 27 wherein the activator comprises a cation and an anion wherein the anion has at least one substituent comprising a moiety having an active hydrogen.

29 (previously presented). A process according to claim 17 carried out in the gas phase.

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30 (previously presented). A process according to claim 29 operating in a fluidized bed reactor.

31 (currently amended). A method for the reduction of fines associated with a polymer product obtained by the polymerisation of olefin monomers selected from the group consisting of (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) with one or more other alpha-olefins performed in a polymerisation reactor in the presence of a supported polymerisation catalyst, said method comprising contacting said supported polymerisation catalyst in powder form prior to injection into the reactor with an inert hydrocarbon liquid in a quantity sufficient to maintain said catalyst in powder form, wherein the inert hydrocarbon liquid is present in amount up to about 10% of the pore volume of the support.

32 (previously presented). A method according to claim 31 wherein the level of fines comprising particles of diameter $< 125 \mu\text{m}$ and microfines of diameter $< 50 \mu\text{m}$ is reduced.